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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,333	06/10/2005	Andrei Mijiritskii	NL030118	1598

24737 7590 02/24/2010
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

SHEN, KEZHEN

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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02/24/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,333	Applicant(s) MIJIRITSKII, ANDREI	
	Examiner Kezhen Shen	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the amended claim 1, applicant argues Tomie does not specifically teach the first dielectric layer and the thermal barrier layer to function as the same layer.

However, it has been held that to be entitled to weight in product claims, the recited structure limitations therein must affect the product in a manipulative sense, and not to amount to the mere claiming of a use of a particular structure. Further, the recitation that an element is "sufficient" to perform a given function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *Ex parte Pfeiffer*, 1962 C.D. 408 (1961).

Therefore, the examiner views the first dielectric layer and the thermal barrier layer to be one layer in the structural sense unless the substation of the first dielectric layer as taught by Tomie does not perform the same function as the first dielectric layer and thermal barrier layer presented by applicant. Further, if the first dielectric layer is viewed as also the thermal barrier layer then the rejection as previously presented also is applicable to the amended limitations regarding the position of the thermal barrier layer with respect to the first dielectric layer reducing heat dissipation.

A new rejection has been made with Ishikawa et al. 5,214,636 in view of the amended claims and new claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomie US 6,251,492 B1. and further in view of Ishikawa et al. 5,214,636.

Regarding claim 1, Tomie teaches a rewritable optical record carrier (Fig. 1, Col 3 Lines 30-48) comprising a recording stack of layers in the following order: a first dielectric layer (6 of Fig. 1, Col 3 Lines 30-48) having a thickness at a first amorphous reflection minimum; a recording layer comprising a phase-change recording material (5 of Fig. 1, Col 3 Lines 30-48); a second dielectric layer (4 of Fig. 1, Col 3 Lines 30-48); and a mirror layer deposited onto the second dielectric layer side of the recording stack (3 of Fig. 1, Col 3 Lines 30-48), wherein a thermal barrier layer (2 of Fig. 1, Col 3 Lines 30-48) is arranged adjacent to said first dielectric layer opposite the mirror layer (Fig. 1, Col 4 Lines 47-51, Col 5 Lines 51-54 the first dielectric layer and the thermal barrier layer can be one and the same and made of the same material ZnS-SiO_2) to reduce heat dissipation emanating from the recording layer (Col 4 Lines 22-42) and passing through the first dielectric layer (Col 4 Lines 15-42 the first dielectric layer is also), and wherein light entering the stack penetrates the thermal barrier layer, the first and second dielectric layers and the recording layers (Col 1 Lines 5-11). Tomie fails to teach the first dielectric layer having a thickness at a first amorphous reflection minimum.

However, Ishikawa et al. does. Ishikawa et al. teach a method of have a dielectric film formed with a minimum reflective light (Fig. 1-3, Col 3 Line 60-Col 5 Line 40).

Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings

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of forming the first dielectric layer with a thickness with a first amorphous reflection minimum as taught by Ishikawa et al. as a whole to set the thickness of the first dielectric layer to a reflection minimum for the benefit of preventing damage during the functions of recording erasing and playback (Col 2 Lines 41-63).

Regarding claim 2, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein the rewritable optical record carrier further comprises a substrate carrying said stack of layers having said thermal barrier layer arranged between said first dielectric layer and said substrate (1, 2 and 4 of Fig. 1, Col 3 Lines 30-48).

Regarding claim 3, Tomie teaches the rewritable optical record carrier as claimed in claim 2, wherein the refraction index of said thermal barrier layer is close to the refraction index of said substrate (Col 4 Lines 9-11, Col 4 Lines 46-50 the refractive index of SiO_2 is around 1.5 and the refractive index of Polycarbonate is around 1.58).

Regarding claim 4, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein the rewritable optical record carrier further comprises a cover layer (1 of Fig. 1, Col 3 Lines 30-48 the substrate is the cover layer, in this case there would be another layer covering the second dielectric layer, Col 5 Line 65- Col 6 Line 5) attached to said thermal barrier layer.

Regarding claim 5, Tomie teaches the rewritable optical record carrier as claimed in claim 4, wherein the refraction index of said thermal barrier layer is close to the refraction index of said cover layer (Col 4 Lines 9-11, Col 4 Lines 46-50 the refractive index of SiO_2 is around 1.5 and the refractive index of Polycarbonate is around 1.58).

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Regarding claim 6, Tomie teaches the rewritable optical record carrier as claimed in claim 2, wherein Said substrate material is polycarbonate or PMMA (Col 1 Lines 51-58, Col 4 Lines 9-11).

Regarding claim 7, Tomie teaches the rewritable optical record carrier as claimed in claim 4, wherein said cover layer material is polycarbonate or transparent polymer resin (Col 1 Lines 51-58, Col 4 Lines 9-11).

Regarding claim 8, Tomie teaches the rewritable optical record carrier claimed in claim 1, wherein said thermal barrier layer material comprises SiO_2 or Al_2O_3 as a major component (Col 4 Lines 46-51).

Regarding claim 9, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein said first and second dielectric layer materials comprise one of the following components or a mixture thereof: ZnS , SiO_2 , Si_3N_4 , Al_2O_3 or Ta_2O_5 (Col 5 Lines 49-54).

Regarding claim 10, Tomie teaches the rewritable optical record carrier as claimed in claim 1, wherein said phase-change recording material comprises a mixture of Ge, In, Sb, and Te (Col 5 Lines 20-25).

Regarding claim 11, Tomie fails to teach the rewritable optical record carrier as claimed in claim 1, wherein said first dielectric layer thickness d_1 can be represented as:

$$d_1 = (m \cdot \lambda) / (2 \cdot n)$$

where m is an integer, λ denotes the wavelength of the laser light, and n is the refractive index of the first dielectric layer material.

However, Ishikawa et al. does. Ishikawa et al. teach a method of have a dielectric film formed with a minimum reflective light which satisfies the equation $n_k d_k = \lambda/2^m$ ($m = 1, 2, 3 \dots$) where n_k is the refractive index of the k th dielectric film, d_k is the thickness of the k th dielectric film and λ is the wavelength of the light beam (Fig. 1-3, Col 4 Line 7- Col 4 Line 51). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with a specific equation as taught by Ishikawa et al. as a whole to set the thickness of the first dielectric layer to a reflection minimum for the benefit of preventing damage during the functions of recording erasing and playback (Col 2 Lines 41-63, Col 4 Lines 38-51).

Regarding claim 12, Tomie fails to teach the rewritable optical record carrier as claimed in claim 11, wherein said amorphous and a crystalline reflection has minimum and maximum levels at certain d_1 values.

However, Ishikawa et al. does. Ishikawa et al. teach the optical record carrier to have minimum and maximum reflection levels (Figs. 2 and 3, Col 5 Lines 1 – 23). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with minimum and maximum reflection levels as taught by Ishikawa et al. as a whole to include minimum and maximum reflection levels for the benefit of allowing variable dielectric thicknesses for different purposes.

Regarding claim 13, Tomie fails to teach the rewritable optical record carrier as claimed in claim 12, wherein said amorphous reflection has a minimum level at a d_1 value when $m=1$.

However, Ishikawa et al. does. Ishikawa et al. teach a method of have a dielectric film formed with a minimum reflective light which satisfies the equation $n_k d_k = \lambda/2^m$ ($m = 1, 2, 3 \dots$) where n_k is the refractive index of the k th dielectric film, d_k is the thickness of the k th dielectric film and λ is the wavelength of the light beam (Fig. 1-3, Col 4 Line 7- Col 4 Line 51). Therefore, it would have been obvious to of ordinary skill in the art to combine the teachings of the rewritable optical record carrier as taught by Tomie with the teachings of forming the first dielectric layer with a specific equation as taught by Ishikawa et al. as a whole to set the thickness of the first dielectric layer to a reflection minimum for the benefit of preventing damage during the functions of recording erasing and playback (Col 2 Lines 41-63, Col 4 Lines 38-51).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kezhen Shen whose telephone number is (571) 270-1815. The examiner can normally be reached on Monday-Friday 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kezhen Shen/
Examiner, Art Unit 2627

/Joseph H. Feild/
Supervisory Patent Examiner, Art
Unit 2627